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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/546,184	04/10/2000	Yashiko Wakabayashi	017446/0301	3000

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FOLEY AND LARDNER  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER
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CHANG, EDITH M

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/546,184

Applicant(s)

WAKABAYASHI, YASHIKO

Examiner

Edith M Chang

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,4,10 and 11 is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9 and 12-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7, a single claim which claims both an apparatus (an equalizer circuit) and the method step (an equalizing method enabling) of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph. The claim directed to an equalizer circuit and the method step enabling of using it held to be ambiguous and properly rejected under 35 U.S.C. 112, second paragraph.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 & 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariyavisitakul (US 5694424) in view of Evans (US 4097806).

Regarding **claims 1 & 6**, Ariyavisitakul discloses an equalizer circuit and its method, the circuit comprising: first and second equalizing means (70 & 68 FIG.4) for equalizing the reception signal; control means (66 FIG.4) for alternately enabling the first and second

equalizing means every frame reception (FIG.2, 26 & 24 are frames; column 4 line 52- column 5 line, where the 66 alternately enables the first equalizer 68 for frame 26 synch word, and the second equalizer 70 for frame 24); switching means (66-90-96 FIG.4) for alternately switching between outputs from the first and second equalizing means every frame reception and outputting the selected output as demodulation data; and a memory (64 FIG.4, having the memory for the reception signals for converting and demodulating) storing the reception signals, however Ariyavisitakul does not explicitly specify *a means for sensing the start of a reception signal on the basis of a signal representing a reception level of the reception signal*. Evans teaches a carrier sensing means (32 FIG.1) for sensing the reception signal on the reception level (column 4 lines 5-10). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the carrier sensing means taught by Evans in Ariyavisitakul's receiver receiver front end (64 FIG.4), to sense the to response to the digital data received for equalizer (Abstract, FIG.1).

Regarding **claims 2 & 7**, Ariyavisitakul discloses the control means (66 FIG.4) alternately outputs first and second sense signals to the first and second equalizing means (FIG.5; column 4 line 52- column 5 line) from a time when the detection signal is output from the carrier sensing means to a time when equalizing processing is complete in the first and second equalizing means (where from a time of the start of 26/24 FIG.2 to a time its processing completed) as indicated in the modified apparatus of claims 1 and 6 rejection, and the first and second equalizing means equalize the reception signal in response to first and second sense signals from the control means (FIG.5).

4. Claims 5 & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariyavisitakul (US 5694424) in view of Evans (US 4097806), further in view of Fudawa et al. (US 5710792).

Regarding **claims 5 & 12**, further Fudawa et al. teaches the adaptive equalizer and its methods. It comprises equalizer (10 FIG.4) for setting tap coefficients (19 FIG.4) and memories for storing preamble signals (11 FIG.4), detecting frequency offset values (23 FIG.4, Abstract), estimate transmission line characteristics (18 FIG.4, Abstract), and set the tap coefficients (19 FIG.4) at the start of reception of the reception signal (FIG.2). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Fudawa et al.'s teaching in Ariyavisitakul's equalizer to suppress transmission distortion (column 1 lines 5-7, '792) that is the ISI Ariyavisitakul tries to reduce in the wireless communications (column 1 lines 50-64).

5. Claims 8 & 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariyavisitakul (US 5694424) in view of Evans (US 4097806), further in view of Kaku et al. (US 6002724).

Regarding **claim 8**, the modified Ariyavisitakul's receiver with Evans' teaching has all subject matter claimed (refer to the rejection of claim 1), except explicitly specify supplying a clock signal. However Kaku teaches supplying a system clock signal to the equalizer units in accordance with the carrier sense signal (17, 15 Fig.4). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the clock/gate taught by Kaku et al. implemented in Ariyavisitakul's receiver front end/carrier detector to alternately supplying a

system clock signal to the first and second equalizer units in response to the carrier sense signals (column 3 lines 55-60).

Regarding **claim 9**, the modified receiver of claim 8 has all subject matter the claim 9 cited. As the first and second equalizing units alternately output first and second demodulation data used during equalizing processing in response to first and second demodulation data gate signal, wherein the clock supply control signal control (15 Fig. 4) in response to the carrier sense signal as the gate signal to control the demodulation data processing in the first and second equalizers.

6. Claims 13 & 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariyavisitakul (US 5694424) in view of Evans (US 4097806), further in view of Kaku et al. (US 6002724) and Fudawa et al. (US 5710792).

Regarding **claims 13 & 14**, further Fudawa et al. teaches the adaptive equalizer and its methods. It comprises equalizer (10 FIG.4) for setting tap coefficients (19 FIG.4) and memories for storing preamble signals (11 FIG.4), detecting frequency offset values (23 FIG.4, Abstract), estimate transmission line characteristics (18 FIG.4, Abstract), and set the tap coefficients (19 FIG.4) at the start of reception of the reception signal (FIG.2). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Fudawa et al.'s teaching in Ariyavisitakul's equalizer to suppress transmission distortion (column 1 lines 5-7, '792) that is the ISI Ariyavisitakul tries to reduce in the wireless communications (column 1 lines 50-64).

*Allowable Subject Matter*

7. Claims 3-4 & 10-11 are allowed.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4800.

Edith Chang  
November 21, 2003

  
**CHIEH M. FAN**  
**PRIMARY EXAMINER**